The Impact of Product Certification on Operational and Business Performance in Small Medium Enterprises – A Case Study of Indonesia

Supervised by : Prof. Jun Yeup Kim
Prepared by : Mohammad Addi Fanhas

CONTENTS

Introduction

Literature Review

Methodology

Result and Discussions

Conclusions and Implication

INTRODUCTION

- SME's Plays an essential role in driving the growth of Indonesian Economy
- 97% of employee, 60% of GDP, 98% of total firms.
- After 2008, government interest to develop SME's in Indonesia -> Ministry of Small Medium Enterprise
- In globalization era, the success orientation of SME has changed, from domestic sales to foreign market sales.
- Consumer needs for high quality product standard have increased.
- SMEs need to improve the quality of their products, one of them by improving the management of its system.
- Product certification and Quality management system aim to support economic activities, consumer protection, safety and health.
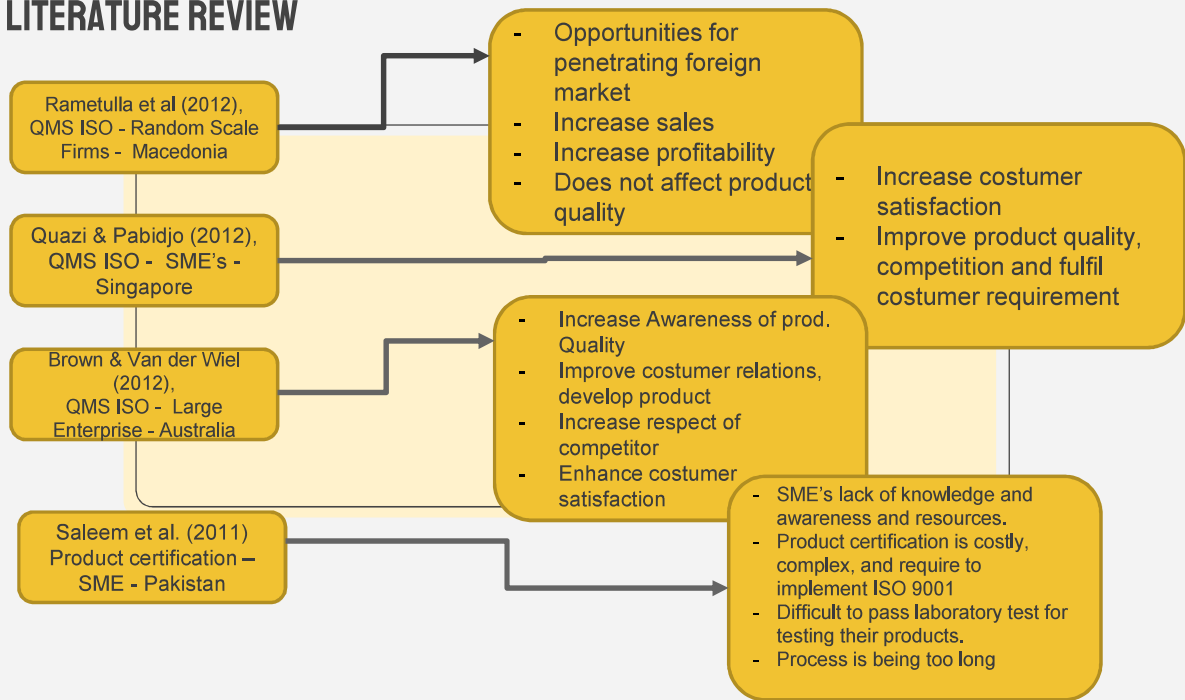
PRODUCT CERTIFICATION IN INDONESIA (SNI)

- **Product standard certification** or **product qualification** is the process of certifying that a certain product has passed **performance tests** and quality assurance tests, and meets qualification criteria stipulated in contracts, regulations, or specifications (typically called "certification schemes" in the product certification industry).

- Basically applied voluntary, will be mandatory In the context of public interest, security, safety environment and national economic development.

- Mostly type 5 of product certification, QMS+Quality product testing.
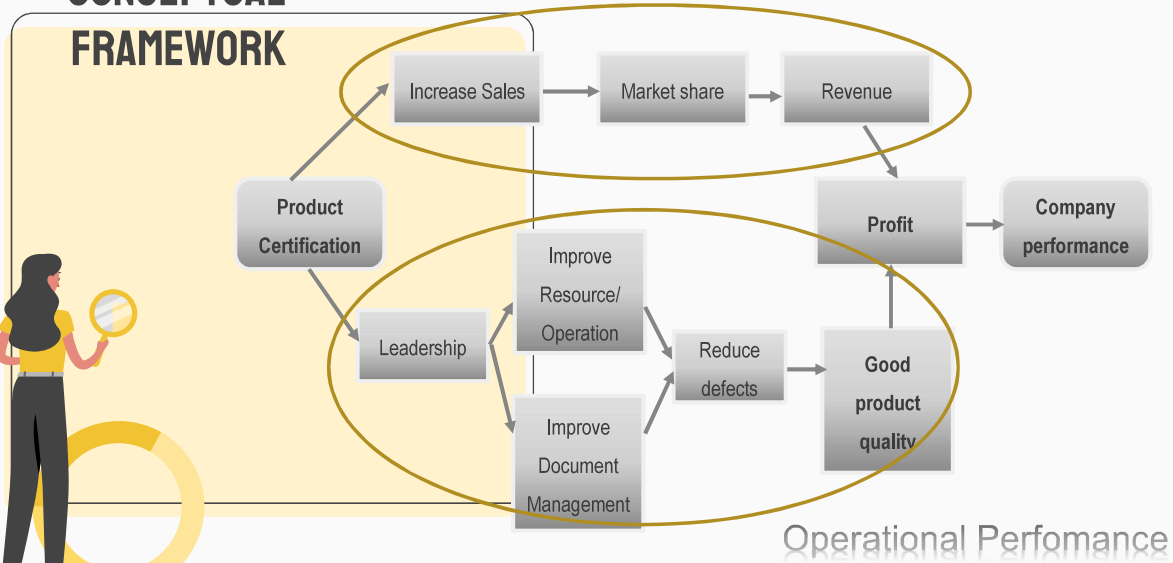- Most of SME's implement product certification because its mandatory.

LITERATURE REVIEW

Rametulla et al (2012), QMS ISO - Random Scale Firms - Macedonia

- Opportunities for penetrating foreign market
- Increase sales
- Increase profitability
- Does not affect product quality

Quazi & Pabidjo (2012), QMS ISO - SME's - Singapore

- Increase costumer satisfaction
- Improve product quality, competition and fulfil costumer requirement

Brown & Van der Wiel (2012), QMS ISO - Large Enterprise - Australia

- Increase Awareness of prod. Quality
- Improve costumer relations, develop product
- Increase respect of competitor
- Enhance costumer satisfaction

Saleem et al. (2011) Product certification – SME - Pakistan

- SME's lack of knowledge and awareness and resources.
- Product certification is costly, complex, and require to implement ISO 9001
- Difficult to pass laboratory test for testing their products.
- Process is being too long

CONCEPTUAL FRAMEWORK

Business Perfomance

Increase Sales → Market share → Revenue

Product Certification

Leadership

Improve Resource/ Operation

Improve Document Management

Reduce defects

Good product quality

Profit → Company performance

Operational Perfomance

RESEARCH OBJECTIVE

1. Does SMEs SNI certified companies get better improvement in their operational and business performance after implementing product certification?

2. What are the significant factors for SMEs to improve their performance?

3. is SME's in Indonesia (with all its limitations) able to implement product certification and quality management systems and how to encourage them?

METHODOLOGY

- SURVEY INSTRUMENT (5 POINT LIKERT SCALE), 36 ITEM OF STATEMENTS

- 200 SMES RESPONDENT (53 VALID RESPONSES) – MINISTRY OF INDUSTRY DATA

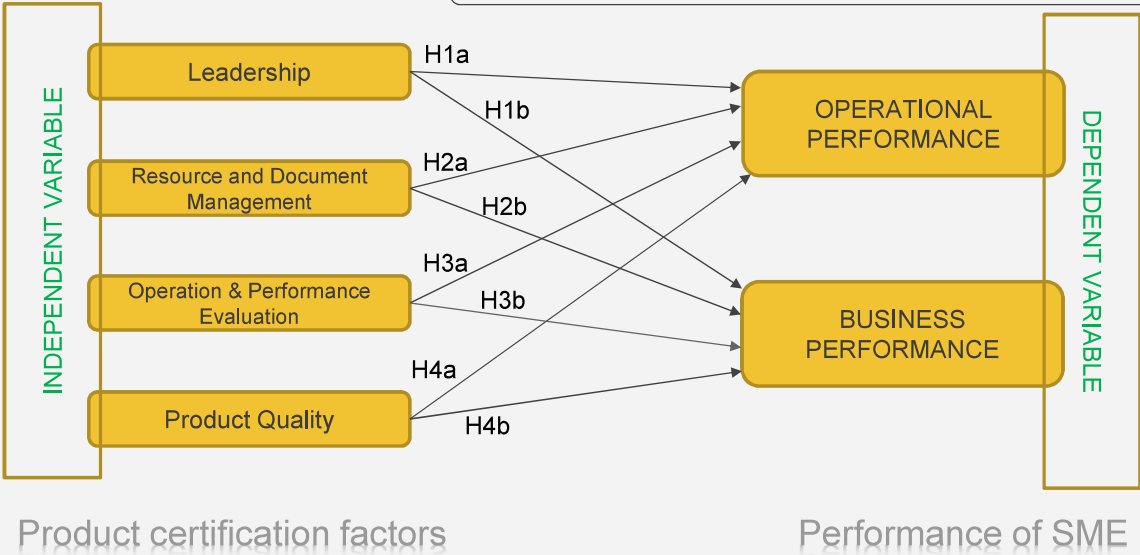- 6 REGION OF INDONESIA

- 6 CLASS OF PRODUCT

- VALIDITY AND REALIBILITY TEST – TO REDUCE MEASUREMENT ERROR

- CORRELATION, FACTOR ANALYSIS AND LINEAR REGRESSION

Research Model and Hypothesis

INDEPENDENT VARIABLE

- Leadership
- Resource and Document Management
- Operation & Performance Evaluation
- Product Quality

H1a, H1b, H2a, H2b, H3a, H3b, H4a, H4b

DEPENDENT VARIABLE

- OPERATIONAL PERFORMANCE
- BUSINESS PERFORMANCE

Product certification factors → Performance of SME

Validity Test

I. CONTENT VALIDITY

✓ there is an agreement between the researcher and respondent that the subject covered all aspects of the measured variable

✓ the four factors used as variables are part of the determinants of ISO 9001: 2015 (QMS-Requirements) and the company's obligation to fulfil SNI product certification requirements.

2. CONSTRUCT VALIDITY

Independent Variable	Item	Factors Loading
Leadership	LD1	0.790
	LD2	0.840
	LD3	0.771
	LD4	0.646
	LD5	0.847
Resource and Documented Information	DI1	0.809
	DI2	0.723
	DI3	0.621
	DI4	0.733
	RU1	0.752
	RU2	0.753
	RU3	0.805
	RU4	0.671
	RU5	0.943
	RU6	0.781
	RU7	0.840
Operation and Performance Evaluation	OP1	0.821
	OP2	0.699
	OP3	0.778
	OP4	0.932
	OP5	0.905
	OP6	0.715
	PE1	0.840
	PE2	0.732
	PE3	0.758
	PE4	0.743
Product Quality	PQ1	0.965
	PQ2	0.950
	PQ3	0.745
	PQ4	0.888

3. CRITERION VALIDITY

	LD	RDI	OPPE	PQ	OPF	BPF
Leadership	1					
Resource & Documented Inf.	0.491**	1				
Operation & Performance Eval.	0.452**	0.643**	1			
Product Quality	0.225	0.487**	0.388**	1		
Operational Performance	0.409**	0.606**	0.620**	0.518**	1	
Business Performance	0,138	0.424*	0.522**	0.709*	0.513**	1

Variable	Reliability Cronbach (α)
Leadership	0,899
Resource and Documented Information	0.810
Operation and Performance Evaluation	0.899
Product Quality	0,876
Operational Performance	0,960
Business Performance	0,946

Source: Calculated by the author using SPSS 24

Correlation coefficient (α)	Reliability Criteria
0,90 < r ≤ 1,00	Excellent
0,80 < r ≤ 0,90	Good
0,60 < r ≤ 0,80	Fair (acceptable)
0,50 < r ≤ 0,60	Poor
0,00 < r ≤ 0,60	Very Poor

I. NORMALITY TEST
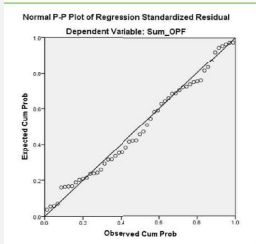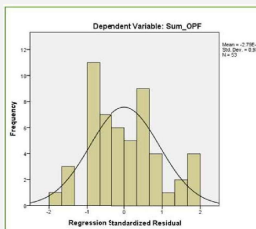
2. HETEROSCEDASTICITY TEST

Factors	Remarks	Residual
Residual	Correlation Coefficient	1.000
	Sig. (2-tailed)	.
Sum LD	Correlation	.032
	Sig. (2-tailed)	.823
Sum DI	Correlation	-.023
	Sig. (2-tailed)	.869
Sum RU	Correlation	.004
	Sig. (2-tailed)	.976
Sum OP	Correlation	-.068
	Sig. (2 tailed)	.628
Sum PE	Correlation	-.052
	Sig. (2-tailed)	.709
Sum PQ	Correlation	-.017
	Sig. (2-tailed)	.904

3. LINEARITY TEST

ANOVA Table			Sum of Squares	df	Mean Square	F	Sig.
Total Mean * Sum OPF	Between Groups	(Combined)	1.516	4	.379	21.464	.000
		Linearity	1.446	1	1.446	81.921	.000
		Deviation from Linearity	.069	3	.023	1.311	.282
	Within Groups		.847	48	.018		
	Total		2.363	52			

0 -
50.000.000
IDR
9%

50.000.000 -
500.000.000
IDR
25%

500.000.000 -
5.000.000.00
0 IDR
66%

Assets of SME's

**Small
Enterprise
4%**

**Medium
Enterprise
96%**

Scale of SME's

51-100
Employees,
24

21-50
Employees,
17

0-20
Employees,
7

Morethan
100
Employees,
5

30
25
20
15
10
5
0

| 0-20 Employees | 21-50 Employees | 51-100 Employees | Morethan 100 Employees |
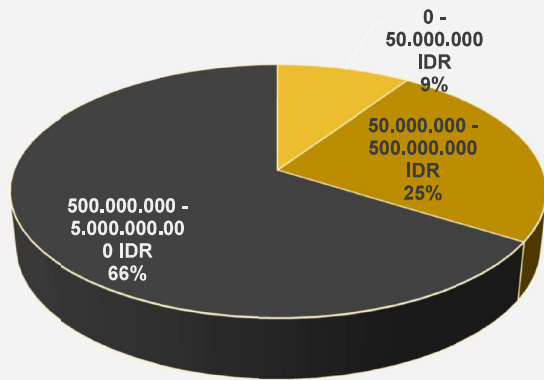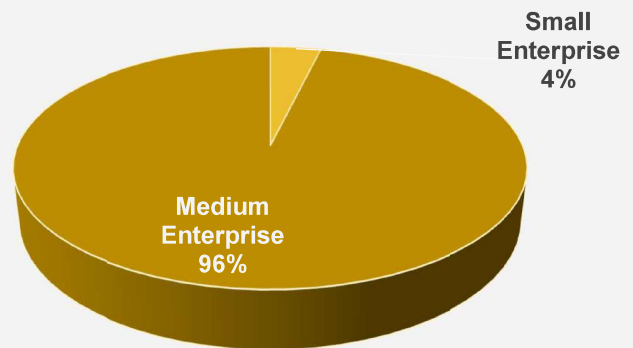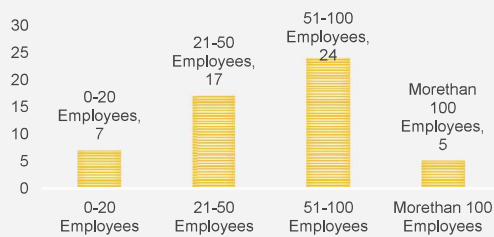
Number of Employees

	Region						
	Jakarta	West Java	Banten	Central Java	Yogyakarta	East Java	Total
Food and Beverage	1	7	2	2	1	1	14 (26%)
Electronics	1	3	0	0	0	0	4 (7%)
Home Appliance	1	1	3	0	0	3	8 (15%)
Chemicals Products	2	4	2	2	0	2	12 (23%)
Steel Products	3	4	2	2	0	3	14 (26%)
others	0	0	0	1	0	0	1 (2%)
Total	8 (15%)	19 (36%)	9 (17%)	7 (13%)	1 (2%)	9 (17%)	**53**

Source: Author's classification based on the survey

Regions and class of products

PROD. CERTIFICATION VS OPERATIONAL PERFORMANCE

| Product Certification Factors	Correlation	P-Value
Overall SNI Product Certification Implementation	0,782**	0,0001
Leadership	0.409**	0,0024
Resource & Documented Information	0.606**	0,0002
Operation & Performance Evaluation	0.620**	0,0000
Product Quality	0.518**	0,0001

Note: ** Significant at p<0,01, 2-tailed
Source: Calculated by the author using SPSS 24

PROD. CERTIFICATION VS BUSINESS PERFORMANCE

Product Certification Factors	Correlation	P-Value
Overall SNI Product Certification Implementation	0,578**	0,000
Leadership	0,138	0,326
Resource & Documented Information	0.422**	0.002
Operation & Performance Evaluation	0.522*	0.001
Product Quality	0.709*	0,000

Note: *. Correlation is significant at the 0.05 level (2-tailed).
** . Correlation is significant at the 0.01 level (2-tailed).
Source: Calculated by the author using SPSS 24
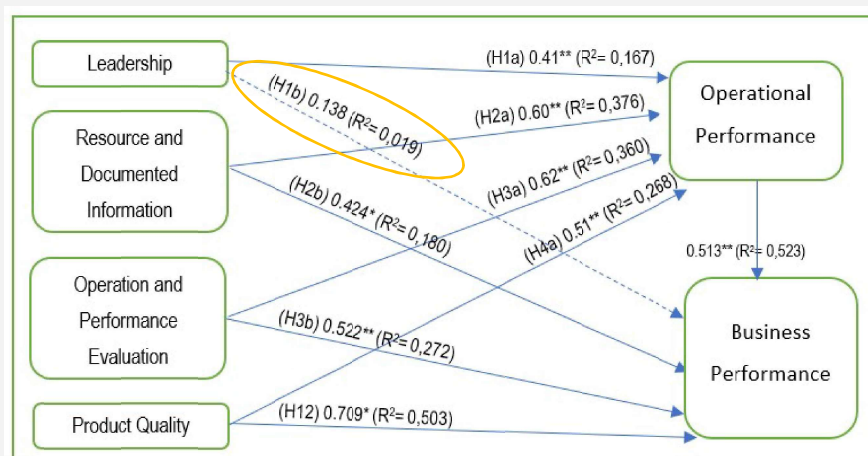
Note: Values in the figure are summed regression coefficients with the z-statistic in parenthesis. Significant levels: $*p < 0.05$, $**p < 0.01$. ___ Supported, and _ _ _ not supported. The dependent variable is one of organizational performance. Independent variables were constructed by five-point Likert scale.

CONCLUSIONS AND IMPLICATIONS

1. From this study, it was found that SME's in Indonesia has statistically been able to implement product certification and quality management systems as include in it.

2. Factors such as leadership, documented information, resource utilization, operations, performance evaluation and product quality have a significant positive impact relationship on operational performance.

3. This study underlines the importance of commitment and involvement of top management in carrying out the quality management system.

4. Interestingly, the leadership factor does not have a significant impact on SME's business performance. This may have something to do with the type of leadership adopted by most SMEs in Indonesia which tend to be transactional.
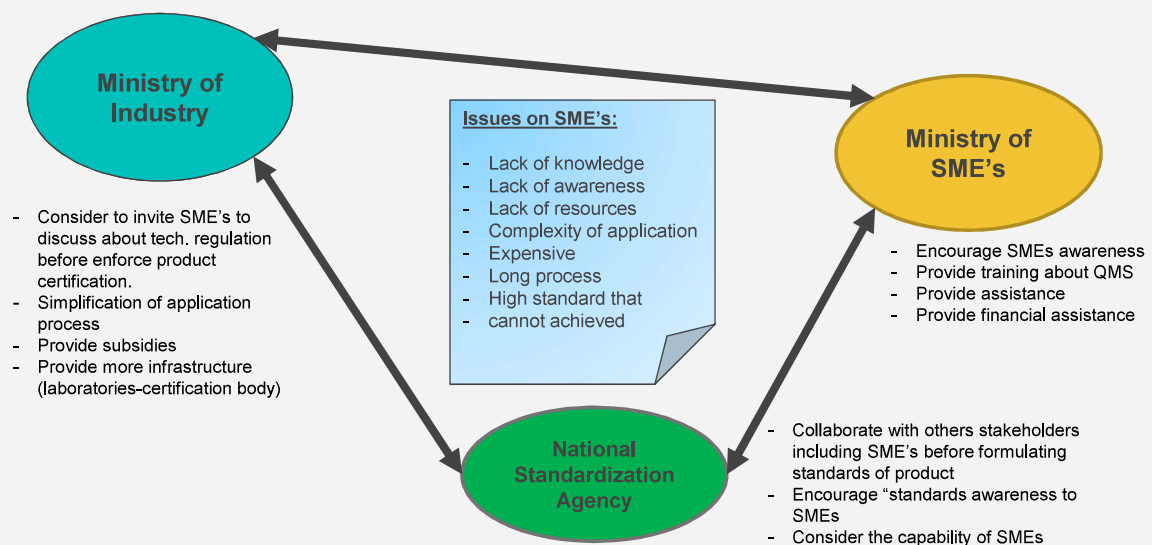
IMPLICATION FOR SME'S

Major Finding	Implication For SME's
- Top management commitment has positive and significant impact to operational performance	- Determine planning policies - Optimizing all the resource - Encourage the continuous improvement
- Top management has no significant impact to business performance	- Consider to shift from transactional to transformational leadership style
- Resource utilization has significant and positive relationship to SME's performance	- Maximizing human resources, - Monitoring and measure adequate resource - Maintaining infrastructure and work environment properly in accordance with product certification requirements.

Major Finding	Implication For SME's
Documented information has significant and positive impact to SME's performance	- Plan what documents are required in the quality management system. - The document must be in the form of quality manuals, procedures, work instructions and also the records needed.
Operations factor plays an important role in improving company performance	- Use of statistical process control - Integration of quality factors to the product design. - Implementing continuous improvement and corrective action in all lines of the company.
Product quality related to the performance & has the most impact to business performance	- Use product quality factor as indicator of company performance evaluation

POLICY RECOMMENDATION

Ministry of Industry

- Consider to invite SME's to discuss about tech. regulation before enforce product certification.
- Simplification of application process
- Provide subsidies
- Provide more infrastructure (laboratories-certification body)

Issues on SME's:

- Lack of knowledge
- Lack of awareness
- Lack of resources
- Complexity of application
- Expensive
- Long process
- High standard that
- cannot achieved

Ministry of SME's

- Encourage SMEs awareness
- Provide training about QMS
- Provide assistance
- Provide financial assistance

National Standardization Agency

- Collaborate with others stakeholders including SME's before formulating standards of product
- Encourage "standards awareness to SMEs
- Consider the capability of SMEs

THANK YOU

Does anyone have any questions?

Addi.fanhas@gmail.com
+82 10 4564 2021
@addi.fanhas